


Revisions	
Symbol	Description
1	INTERMEDIATE (60%) DESIGN
0	PRELIMINARY (30%) DESIGN
	Date
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Designed By:	CW	Date:	12/02/03
Drawn By:	HW	File No.	47118.0130
Checked By:	JT	Drawing CAD Name:	C-1
Reviewed By:	CL	Contract Number:	

UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY

**BLACK & VEATCH**
Special Projects Corp.

GROUNDWATER EXTRACTION
AND TREATMENT SYSTEM DESIGN
STANDARD CHLORINE OF DELAWARE

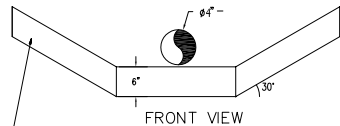
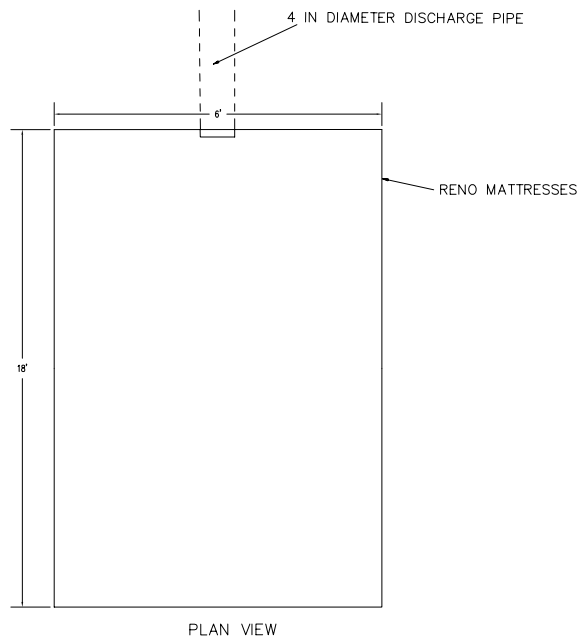
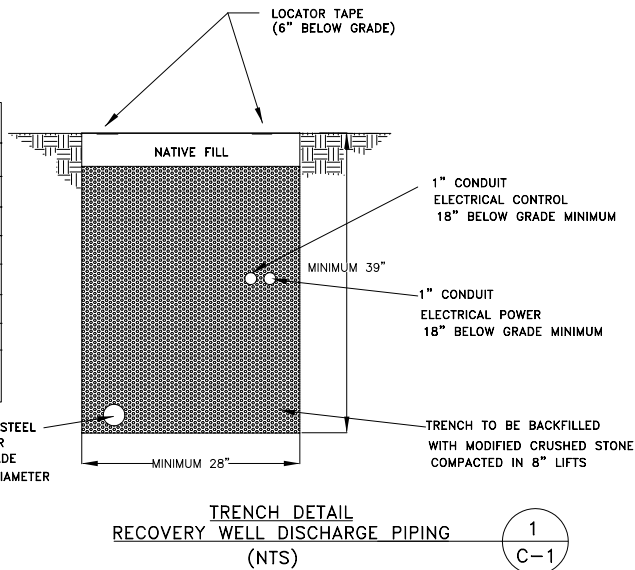
SITE LAYOUT PLAN WITH
EROSION AND SEDIMENT CONTROLS

Sheet
Reference
Number:
C-1

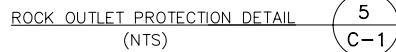
NOTES
SEE SHEET C-2 THROUGH C-4 FOR COMPLETE NOTES
AND DETAIL DRAWINGS.

PIPE EXTENT	PIPE Ø
W-1 TO W-2	2"
W-2 TO W-3	2"
W-3 TO W-4	3"
W-4 TO W-5	3"
W-5 TO W-6	3"
W-6 TO W-7	2"
W-7 TO W-8	2"
W-3 TO TRMT. BLDG.	4"

SCH 40 304 STAINLESS STEEL -
RECOVERED GROUNDWATER
MINIMUM 36" BELOW GRADE
SEE ABOVE TABLE FOR DIAMETER

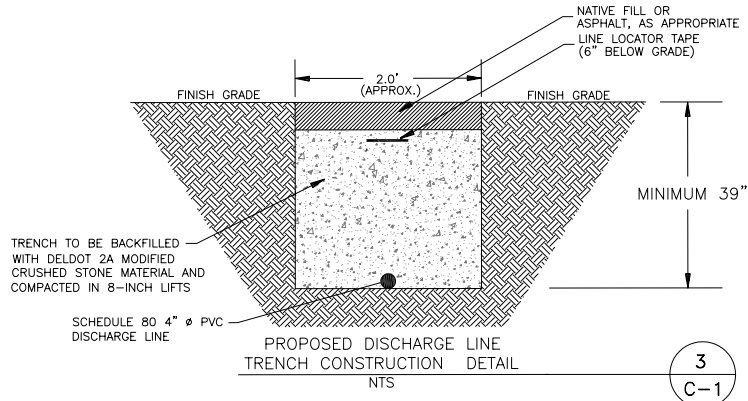


6 IN x 6 FT x 9 FT RENO MATTRESS
WITH 30° ANGLED SIDES



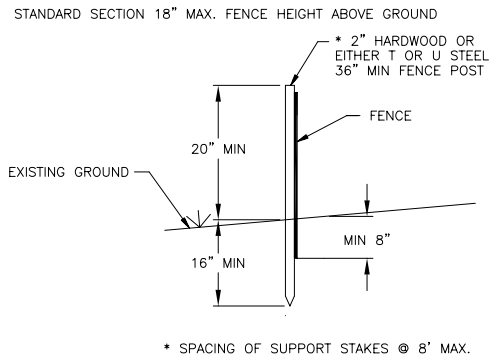
NOTES:

1. DISCHARGE PIPING DISCHARGES 18 FEET FROM BANK INTO RENO MATTRESS LINED CHANNEL. CHANNEL LINED WITH 9' LONG RENO MATTRESSES STOPPING APPROXIMATELY 1 FOOT BEFORE BANK OF WETLAND. EDGE OF WETLANDS SHALL NOT BE DISTURBED.



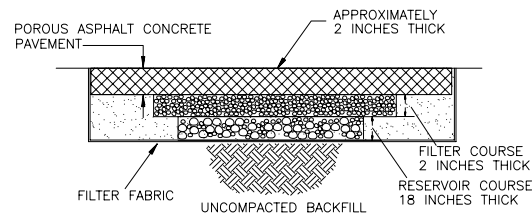
GENERAL NOTES

- 1) 4" SCHEDULE 80 PVC DISCHARGE PIPING IS TO BE INSTALLED USING A LIQUID PVC PIPE ADHESIVE/CEMENT.
- 2) SEE SECTION 02704-- PIPELINE PRESSURE AND LEAKAGE TESTING FOR FIELD HYDROSTATIC LEAKAGE TESTING STANDARDS AND PROCEDURES.
- 3) ASPHALT DISTURBED BY CONTRACTOR DURING TRENCHING IS TO BE PATCHED/REPAIRED BY CONTRACTOR



NOTES:

1. SUBCONTRACTOR SHALL FURNISH, INSTALL, AND MAINTAIN FILTER FABRIC FENCE IN ACCORDANCE WITH THE SUBCONTRACT DRAWINGS AND SPECIFICATION SECTION 02270 - EROSION AND SEDIMENT CONTROL.
2. FILTER FABRIC FENCE MUST BE INSTALLED AT LEVEL GRADE, BOTH ENDS OF EACH FENCE SECTION TO BE COLLECTED TO THE MAXIMUM ALLOWABLE SLOPE LENGTH STANDARDS FOR SILT FENCE.
3. SUBCONTRACTOR SHALL REMOVE SEDIMENT WHEN ACCUMULATIONS REACH 1/2 THE ABOVE GROUND HEIGHT OF THE FENCE.



NOTE:

SUBCONTRACTOR SHALL FURNISH AND CONSTRUCT POROUS ASPHALT PAVING IN ACCORDANCE WITH THE SUBCONTRACT DRAWINGS AND SPECIFICATIONS.




GENERAL NOTES:

1. SUBCONTRACTOR SHALL PERFORM ALL WORK IN ACCORDANCE WITH THIS PLAN SET AND THE SUBCONTRACT SPECIFICATIONS.
2. SUBCONTRACTOR SHALL COORDINATE WORK WITH UTILITY COMPANIES IN ACCORDANCE WITH SPECIFICATION SECTION 02600 - UTILITIES.

EROSION AND SEDIMENT CONTROL NOTES:

1. SUBCONTRACTOR SHALL FURNISH, INSTALL, AND MAINTAIN EROSION AND SEDIMENT CONTROLS IN ACCORDANCE WITH THIS SHEET, SPECIFICATION SECTION 02270 - EROSION AND SEDIMENT CONTROL AND SPECIFICATION SECTION 02930 - SEEDING
2. SUBCONTRACTOR SHALL CONSTRUCT AND MAKE FUNCTIONAL ALL EROSION AND SEDIMENT CONTROLS PRIOR TO ANY DISTURBANCE OF THE PROPERTY.
3. STOCKPILES SHALL NOT BE CONSTRUCTED HIGHER THAN 5 FEET NOR HAVE SIDESLOPES STEEPER THAN 2H:1V.
4. SUBCONTRACTOR SHALL PROPERLY MAINTAIN ALL EROSION AND SEDIMENT CONTROLS UNTIL THE PROPERTY IS STABILIZED. MAINTENANCE SHALL INCLUDE INSPECTIONS OF ALL CONTROLS ON A DAILY BASIS AND AFTER EACH RUNOFF EVENT.
5. SUBCONTRACTOR SHALL CONSTRUCT AND OPERATE A DECON STATION AS REQUIRED BY SPECIFICATION SECTION 01500 - TEMPORARY FACILITIES. SUBCONTRACTOR SHALL THOROUGHLY CLEAN THEIR VEHICLES AND EQUIPMENT OF ALL SEDIMENT AND DEBRIS PRIOR TO LEAVING THE PROPERTY.
6. ANY DISTURBED AREA ON WHICH ACTIVITY HAS CEASED SHALL BE IMMEDIATELY STABILIZED BY SUBCONTRACTOR IN ACCORDANCE WITH SPECIFICATION SECTION 02930 - SEEDING.
7. SUBCONTRACTOR SHALL REMOVE EROSION AND SEDIMENT CONTROLS ONLY AFTER PERMANENT STABILIZATION OF A UNIFORM 70% VEGETATIVE COVER OF PERENNIAL SPECIES HAS BEEN ACHIEVED, AS APPROVED BY CONTRACTOR. AREAS DISTURBED DURING THE REMOVAL OF THE CONTROLS SHALL BE STABILIZED IMMEDIATELY BY SUBCONTRACTOR ACCORDING TO SPECIFICATION SECTION 02930 - SEEDING.

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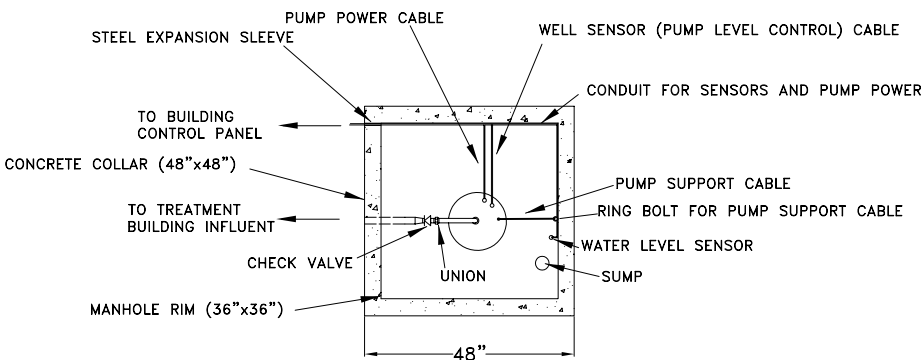
 BLACK & VEATCH <i>Special Projects Corp.</i>	UNITED STATES ENVIRONMENTAL PROTECTION AGENCY	Designed By: CW	Date: 12/02/03
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		Checked By: CL	Drawing CADD Name: C-3
		Reviewed By: JT	Contract Number:

GROUNDWATER EXTRACTION
AND TREATMENT SYSTEM DESIGN
STANDARD CHLORINE OF DELAWARE

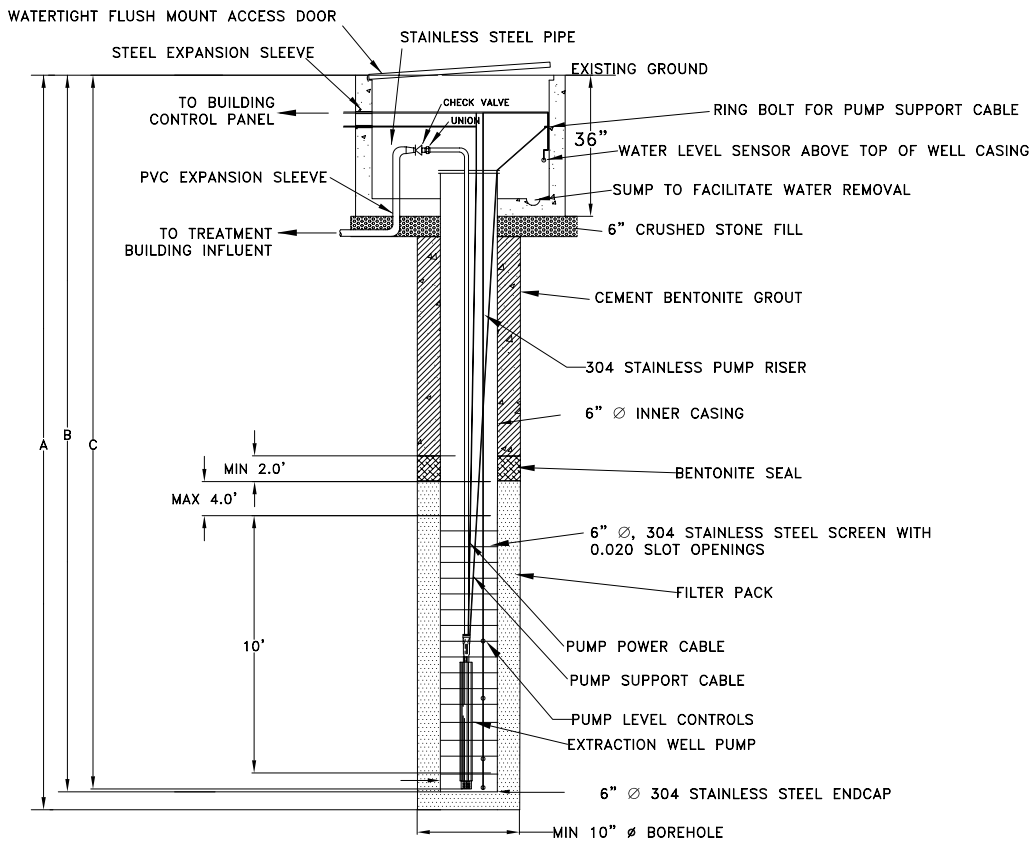
MISCELLANEOUS DETAIL DRAWINGS

Sheet
Reference
Number:

C-3



EXTRACTION WELL AND PUMPING SYSTEM
DETAIL, PLAN VIEW
NOT TO SCALE
NOTE: ACCESS DOOR NOT SHOWN ON PLAN VIEW
FOR CLARITY



EXTRACTION WELL, VAULT AND PUMPING
SYSTEM DETAIL
NTS

TABLE C-4.1				
WELL LOCATION	PUMP ID	A	B	C
W-1	RW-100	45'	43'	42'
W-2	RW-101	45'	43'	42'
W-3	RW-102	50'	48'	47'
W-4	RW-103	25'	23'	22'
W-5	RW-104	25'	23'	22'
W-6	RW-105	25'	23'	22'
W-7	RW-106	35'	32'	32'
W-8	RW-107	50'	48'	47'

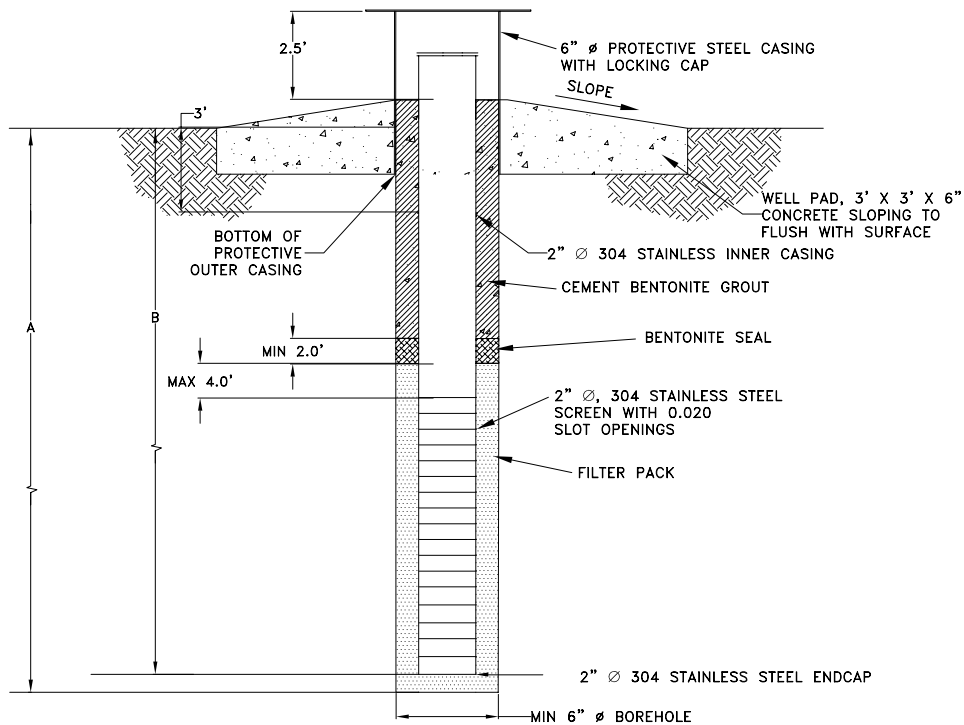


TABLE C-4.2

Well ID	A	B
BMW-1	35'	33'
BMW-2	38'	36'
BMW-3	15'	13'
BMW-4	25'	23'
BMW-5	44'	42'
BMW-6	45'	43'
BMW-7	50'	48'

MONITORING WELL, VAULT AND PUMPING
SYSTEM DETAIL
NTS

- NOTES:
1. VAULT ACCESS DOOR SHALL BE 36" X 36", CONSTRUCTED OF GALVANIZED CARBON STEEL AND BE CUSTOMIZED WITH A WATERTIGHT GASKET AND BOLTED DOWN FOR H-20 WHEEL LOADS. DOOR SHALL BE PROVIDED WITH A SPRING ASSISTED OPENING MECHANISM AND BE OPERATED WITH A REMOVABLE HANDLE FROM THE OUTSIDE.
 2. RECOVERY WELL INSTALLATION SHALL BE PRECEDED BY THE INSTALLATION OF A PILOT BORING AT EACH LOCATION BY THE SUBCONTRACTOR. GEOTECHNICAL "SPLIT SPOON" SAMPLES SHALL BE COLLECTED FROM DISTANCES BGS DETERMINED BY THE CONTRACTOR'S RESIDENT ENGINEER TO THE TOP OF THE CLAY LAYER. THE CONTRACTOR'S RESIDENT ENGINEER WILL SELECT THREE REPRESENTATIVE SAMPLES FROM EACH OF THE PILOT BORINGS FOR SIEVE ANALYSIS TO BE PERFORMED BY THE SUBCONTRACTOR. SUBCONTRACTOR SHALL CONSTRUCT THE RECOVERY WELL AFTER RECEIVING CONTRACTOR'S APPROVAL OF FILTER PACK DESIGN.
 3. STEEL PIPE SLEEVE WITH SEALANT PIPE INSTALLED THROUGH THE WALL OF VAULT FOR CONVEYANCE OF PIPING.
 4. PUMP SHALL BE GRUNDFOS PUMP MODEL 25S50-26 WITH STAINLESS STEEL PUMP, IMPELLER AND MOTOR.
 5. SUBCONTRACTOR SHALL CONSTRUCT EXTRACTION WELLS AND MONITORING WELLS IN ACCORDANCE WITH SPECIFICATION 02150 - WELLS.
 6. DEPTHS SUPPLIED ON TABLES C-4.1 AND C-4.2 ARE ESTIMATED AND SHALL BE VERIFIED BY SUBCONTRACTOR DURING INSTALLATION. ALL WELLS SHALL BE CONSTRUCTED SO THAT THE WELL SCREEN ENDCAP IS AT A DEPTH EQUAL TO THAT OF THE TOP OF THE CLAY LAYER UNDERLYING THE COLUMBIA AQUIFER, TO BE CONFIRMED BY THE CONTRACTOR IN THE FIELD.

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY	BLACK & VEATCH Special Projects Corp.
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GROUNDWATER EXTRACTION AND TREATMENT SYSTEM DESIGN STANDARD CHLORINE OF DELAWARE	WELL DETAILS
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Sheet Reference Number:
C-4